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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/665,099 | 09/17/2003 | Cem Basceri | 108298719US | 6145 |
| 25096 | 7590 | 06/09/2005 | EXAMINER | |
| PERKINS COIE LLP | | | BREWSTER, WILLIAM M | |
| PATENT-SEA | | | ART UNIT | |
| P.O. BOX 1247 | | | 2823 | |
| SEATTLE, WA 98111-1247 | | | PAPER NUMBER | |

DATE MAILED: 06/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/665,099

Applicant(s)

BASCERI ET AL.

Examiner

William M. Brewster

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-32 is/are pending in the application.
- 4a) Of the above claim(s) 22-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14-21 and 28-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 040705; 041305.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

In view of the amendments filed on 13 April 2005:

Claims 22-27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 13 April 2005.

Applicant's election without traverse of claims 1-12, 14-21, 28-32 in the reply filed on 13 April 2005 is acknowledged.

Information Disclosure Statement

Examiner has reviewed and considered the IDSes filed on 7 April 2005 and 13 April 2005: all 14 pages listing close to 400 references. Examiner notes that such lengthy IDSes, including the ones filed in this application contains many references that do not read on the claims and many that may not even contain information useful to the specification.

Such IDSes are not without their consequences including: 1) reducing the already limited time examiners are allowed for searching, 2) increasing pendency, 3) depressing examiner corps morale making it harder to retain qualified examiners, 4) perhaps giving judges reason to create new exceptions in case law to USPTO IDS practice, and 5) providing more evidence and calls for bright-line limits on the number of

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references filed, which if implemented would probably be more restrictive than the self-regulated patent bar would impose on itself.

With all this at stake, examiner urges the applicant's representatives to practice greater selectivity and economy when filing IDSes.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 8, 11, 12, 28, 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Liu et al., US Publication No. 2005/0016956 A1.

Liu anticipates in fig. 4, a method of depositing a material on a plurality of microfeature workpieces 414 held in a spaced relationship within an enclosure of a processing system 414, p. 6, ¶ 54-56, in fig. 3B, the enclosure including a first precursor gas and having a first enclosure pressure T3, p. 3, ¶ 35, the method comprising: in figs. 3A, 3B, reducing pressure, in fig. 3A, T5 within the enclosure to a second enclosure pressure while introducing a flow of a purge gas into the enclosure at a first flow rate, Maxima A down to Base Purge Flow, the second enclosure pressure being less than the first enclosure pressure,

the processing system having a base pressure at the first flow rate, and a difference between the second enclosure pressure and the first enclosure pressure being at least 90% of the difference between the base pressure and the first enclosure pressure, fig. 3A, from Maxima of A to Base Purge Flow, wherein the units are arbitrary and thus may be chosen as 90% reduction by the practitioner, and after reducing the pressure within the enclosure to the second enclosure pressure, increasing flow rate of the purge gas to a second flow rate, in fig. 3A, the positive slope of Curve B, and increasing the pressure within the enclosure to a third enclosure pressure, also low and high purge levels, p. 5, ¶ 50, the second flow rate being greater than the first flow rate and the third enclosure pressure being greater than the second enclosure pressure, depending on the points chosen by the practitioner in figs. 3A & 3B; limitations from claim 28, in fig. 3A introducing a flow of a second precursor gas to the enclosure with the pressure within the enclosure at a fourth enclosure pressure, curve B, a difference between the third enclosure pressure and the fourth enclosure pressure being about 0-10% of the fourth enclosure pressure, in fig. 3B, T7;

limitations from claim 8, the method of claim 1 further comprising, in fig. 3B, after increasing the pressure within the enclosure to the third enclosure pressure, in T7, introducing a flow of a second precursor gas to the enclosure with the pressure within the enclosure at a fourth enclosure pressure, a difference between the third enclosure pressure and the fourth enclosure pressure being about 0-10% of the fourth enclosure pressure.

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limitations from claim 11, the method of claim 8 further comprising, in fig. 3A, after introducing the flow of the second precursor gas: terminating the flow of the second precursor gas, negative slope of B; reducing pressure within the enclosure to the second enclosure pressure while introducing a flow of a purge gas into the enclosure at the first flow rate; and increasing flow rate of the purge gas to the second flow rate, p. 5, ¶ 50, and increasing the pressure within the enclosure to the third enclosure pressure, in fig. 3B, T9;

limitations from claims 12, 32, the method of claim 8 further comprising, after introducing the flow of the second precursor gas: terminating the flow of the second precursor gas in fig. 3A, negative slope of B until termination; reducing pressure within the enclosure to a fifth enclosure pressure while introducing a flow of a purge gas into the enclosure at the first flow rate, in fig. 3B, a difference between the fifth enclosure pressure and the first enclosure pressure being at least 90%, from Maxima of A to Base Purge Flow, wherein the units are arbitrary and thus may be chosen as 90% reduction by the practitioner, of the difference between the base pressure and the first enclosure pressure and the fifth enclosure pressure being different from the second enclosure pressure, depending on the point in the curves of fig. 3B, and increasing flow rate of the purge gas to the second flow rate and increasing the pressure within the enclosure to a sixth enclosure pressure, a difference between the sixth enclosure pressure and the fourth enclosure pressure being about 0-10% of the fourth enclosure pressure, wherein in ALD systems, the cycles repeat, p. 1, ¶ 3.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-7, 9-10, 29-31, rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as applied to claims 1, 8, 11 above.

Liu does not specify the flow rates, or the exact pressures, however since Liu specifies in figs. 3A & B the units are arbitrary, and gives broad spectrum in his graphs, these exact numerical limitations. Further, criticality has not been specified for the numerical limitations.

"Normally, it is to be expected that a change in temperature, or in concentration, or in both, would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely degree from the results of the prior art . . . such ranges are termed 'critical ranges' and the applicant has the burden of proving such criticality . . . More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation."

In re Aller 105 USPQ 233, 255 (CCPA 1955). See also In re Waite 77 USPQ 586 (CCPA 1948); In re Scherl 70 USPQ 204 (CCPA 1946); In re Irmscher 66 USPQ 314 (CCPA 1945); In re Norman 66 USPQ 308 (CCPA 1945); In re Swenson 56 USPQ 372 (CCPA 1942); In re Sola 25 USPQ 433 (CCPA 1935); In re Dreyfus 24 USPQ 52 (CCPA 1934).

Note that the specification contains no disclosure of either the critical nature of the claimed dimensions of any unexpected results arising there from. Where patentability is aid to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Claims 18, 14-17, 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu.

Liu teaches limitations from claim 18, a method of deposition a material on a microfeature work-piece, comprising: in fig. 4, positioning a plurality of microfeature workpieces 14 within an enclosure of a processing system, each of the microfeature workpieces 410 having a surface, in fig. 3B, exposing the surfaces of the microfeature workpieces to a first precursor has at a first enclosure pressure to allow at least a monolayer of the first precursor has to be adsorbed on the surfaces of the microfeature workpieces, T3; reducing pressure within the enclosure to a second lower enclosure pressure in a pump-down process, Purge A, the pump-down process comprising withdrawing has from the enclosure while introducing a purge has at a first flow rate, in fig. 3A, for a first period of time, Base Purge Flow, the pump-down process reducing a partial pressure of the first precursor has within the enclosure, and after the pump-down process, pumping the enclosure in a purge process, the pump process comprising introducing the purge gas at a second flow rate, fig. 3A, from points on the curve of the

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practitioner's choosing, and allowing the enclosure pressure to increase to a third enclosure pressure that is greater than the second enclosure pressure, wherein the processing system has a base pressure at the first flow rate and a difference between the second enclosure pressure and the first enclosure pressure being at least 90% of the difference between the base pressure and the first enclosure pressure, fig. 3A, from Maxima of A to Base Purge Flow, wherein the units are arbitrary and thus may be chosen as 90% reduction by the practitioner.

Liu does not specify the flow rates, or the exact pressures, however since Liu specifies in figs. 3A & B the units are arbitrary, and gives broad spectrum in his graphs, these exact numerical limitations. Further, criticality has not been specified for the numerical limitations.

For limitations from claim 19 the method of claim 18 wherein the partial pressure of the first precursor gas within the enclosure decreases at a first rate profile during the pump-down process and the partial pressure of the first precursor gas decreases at a second rate profile during the purge process, the first rate profile having an initial rate and a terminal rate in fig. 3A, upper portion, negative slope of curve A, the initial rate being substantially greater than the second rate and the second rate being greater than the terminal rate, fig. 3A, lower portion of negative slope of curve A.

"Normally, it is to be expected that a change in temperature, or in concentration, or in both, would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular

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ranges claimed produce a new and unexpected result which is different in kind and not merely degree from the results of the prior art . . . such ranges are termed 'critical ranges' and the applicant has the burden of proving such criticality . . . More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation."

In re Aller 105 USPQ 233, 255 (CCPA 1955). See also In re Waite 77 USPQ 586 (CCPA 1948); In re Scherl 70 USPQ 204 (CCPA 1946); In re Irmischer 66 USPQ 314 (CCPA 1945); In re Norman 66 USPQ 308 (CCPA 1945); In re Swenson 56 USPQ 372 (CCPA 1942); In re Sola 25 USPQ 433 (CCPA 1935); In re Dreyfus 24 USPQ 52 (CCPA 1934).

Note that the specification contains no disclosure of either the critical nature of the claimed dimensions of any unexpected results arising there from. Where patentability is aid to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William M. Brewster whose telephone number is 571-272-1854. The examiner can normally be reached on Full Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

William M. Brewster

26 May 2005

WB